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Application of calcium chloride in Pea (*Pisum sativum*) to alleviates the effect of drought stress

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Plants use different adaptive mechanisms to cope with drought at morphological, physiological, and biochemical levels. All organisms use a network of signal transduction pathways to adapt to the environment. Among these pathways, a calcium (Ca^{2+}) ion plays an important role as a universal second messenger. Calcium plays a fundamental role in regulating the polar growth of cells and provides the protection against various stress factors. This study was conducted to examine the role of Ca^{2+} in ameliorating the adverse effect of drought stress responses in two contrasting pea genotypes, AIB 1 (drought sensitive) and AIB 2 (drought tolerant), differing in their drought tolerance. The plant were treated with mannitol (100mM and 200mM) and then supplemented with CaCl_2 (2mM, 5mM, 7mM and 10mM). Morphological measurements are recorded, shoot length, leaf and root length, shoot and root width, shoot and root weight. Our finding provide evidence of the protective role of calcium in conferring better tolerance against mannitol- induced drought stress in pea genotypes, which could be useful as genetic stock to develop pea tolerant varieties in breeding program.

Keywords: Pea, abiotic stress, Calcium chloride, Mannitol